

# REMARKS

Applicant has carefully considered the Final Rejection per the Office Action of December 30, 2008, rejecting all of the claims. The present response is intended to fully address all points of objection raised by the Examiner, and  
5 is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

The Applicant would like to express his appreciation to the Examiner for the telephone interviews of February 17, 2009 and March 9, 2009, conducted by the undersigned,  
10 Applicant's attorney, and for the review of the February 26, 2009 fax submittal of a proposed amendment.

Based on the conclusions of these telephone interviews, the claims have been amended to overcome the rejections.  
15 Claims 1-5, 7, 26-27, 31, 35, 38-45, 50 and 52 have been amended. Claims 6, 8-25, 28-30, 32-34, 36-37, 46-49 and 51 have been deleted. Therefore, claims 1-5, 7, 26-27, 31, 35, 38-45, 50 and 52-53 remain in the case.

The primary objective of the Applicant's invention is providing an effective system and method to allow free walking and roaming for a visually impaired and/or blind person even in an unfamiliar or unknown environment with potentially unseen obstacles.  
20

The present invention provides the required and essential capabilities aimed at achieving accurate 3-D representation of the surroundings, no matter how complex the scene, or how many objects are populating the area. Moreover, in a scene description, which is communicated as in a normal speech conversation to the user, **priority**  
25 **criteria** are adopted and only relevant and important  
30

information is communicated verbally to a visually impaired and/or blind user. This is far different than the use of a variation of tones as suggested in the prior art (Depta) and a method which imposes a needless mental burden on the visually handicapped to interpret these tones as objects.

The present amendment to claim 1 incorporates portions of the recitation of claim 27 relating to the operation of the sensing means which produces a "cloud" of spatial pixels (voxels) representing points on the surfaces which are observed from the user's point of view. The claim also describes the operation of the identifying means in applying algorithms for decomposing the "cloud" into surfaces and 3-D objects, enabling construction of a scene description which is verbally communicated in conversational speech to the user.

Claim 27 has also been amended to recite a computer program product storing instructions for execution by a computer in performing the inventive method, as outlined above. This amendment overcomes the Sec. 101 rejection.

The Examiner has rejected claims 1-5, 7, 10, 31, 36-45, and 49 as being unpatentable under Sec. 103(a) based on the patent to Depta in view of Ellis et al, references which have been cited in previous Office Actions.

Applicant has previously commented on these references and argued the patentable distinctions of the invention, and it is recommended that the Examiner review the Applicant's previous response (filed March 10, 2008) in regard to these references.

With regard to Depta, the orientation system discloses only that "small objects are depicted with relatively high tones, and relatively large objects are depicted with relatively low tones" (col. 4, lines 12-14).

The Examiner now concedes (p. 4 of Office Action) that Depta "does not particularly disclose the High-Level Vision processing module for interpreting high-level data... wherein said scene description comprises a hierarchy of object  
5 classes identified by said system, together with their position information, physical characteristics, and relative velocity vectors indicating motion".

However, the Examiner maintains that Ellis teaches the High-Level Vision processing module for interpreting,  
10 decomposing and synthesizing high-level data from sensing means.

With regard to Ellis, the reference only discloses (at col. 2, lines 15-18) a system with a converter 110 which receives multidimensional video data, and converts it to  
15 audio representation. The audio representation is further described (at col. 3, lines 18-20) as "audio representation with differentiating frequencies and volumes for different objects at different distances". At col. 3, lines 33-35 it is stated that "in this way, tables, chairs, doors and many  
20 other objects could be identified by the sound of the audio representation".

Thus, the Ellis reference is similar to Depta in the use of audio representations for depicting objects.

Therefore, the Ellis patent adds nothing to the  
25 teaching of Depta which would render the present invention obvious.

The Ellis reference further describes, at col. 3. lines 56-58, that "text recognition could also be incorporated into the invention, allowing the user to hear audio  
30 representations of the text".

However, simple text-to-speech converters, which are well-known, establish a technology level which leaves a wide

gap from the inventive technology. As now amended, the claims recite inventive technology which employs low and high-level algorithms to decompose a "cloud" of spatial pixels, to develop a scene description which is communicated  
5 to the user by use of verbal communication including conversational speech.

Therefore, it is the Applicant's position that the combination of the Depta and Ellis references to form the basis of the Sec. 103(a) rejection is improper, and  
10 Applicant respectfully requests that it be withdrawn.

Consequently, claims 1 and 27 are deemed to be patentable, and the dependent claims are deemed to be patentable as being based thereon.

In citing the references under Sec. 103(a), the  
15 question is raised whether the references would suggest the invention, as stated in the decision of In Re Lintner (172 USPQ 560, 562, CCPA 1972);

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is  
20 necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed substitution, combination or other modification."

25 Similarly, In Re Regel (188 USPQ 136, CCPA 1975) decided that the question raised under Sec. 103 is whether the prior art taken as a whole would suggest the claimed invention to one of ordinary skill in the art. Accordingly,  
30 even if all the elements of a claim are disclosed in various prior art references, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill would have been

prompted to combine the teachings of the references to arrive at the claimed invention.

Simply put, and as stated in *In Re Clinton* (188 USPQ 365 CCPA 1976), "do the references themselves... suggest doing  
5 what appellants have done", such that there is a requirement that the prior art must have made any proposed modification or changes in the prior art obvious to do, rather than obvious to try.

As stated in *Application of Wesslau*, 353 F.2d 238, 241  
10 (CCPA 1965):

"It is impermissible within the framework of Sec. 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such  
15 reference fairly suggest to one of ordinary skill in the art."

The Examiner is relying on speculation and hindsight reconstruction of the references in view of the invention.

20 As stated in *Grain Processing Corp. v. American Maize-Products Corp.*, 840 F.2d 902. 908 (Fed. Cir. 1988):

"Care must be taken to avoid hindsight reconstruction by using the patent in suit as a guide through the maze of prior art references, combining the right references in the  
25 right way so as to achieve the result of the claims in suit."

As stated in *Re Dance*, 160 F.3d 1339, 1343 (Fed. Cir. 1998), before prior art references can be combined or  
30 modified, there must be some suggestion or motivation found in the art to make the combination or modification.

The only motivation for the modification suggested by the Examiner is provided by the Applicant's invention. The Applicant is the first to recognize the need for a system  
35 and method to allow free walking and roaming for a visually

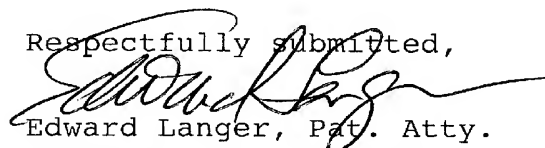
impaired and/or blind person even in an unfamiliar or unknown environment with potentially unseen obstacles.

It is respectfully put forward by the Applicant that there is no reason to consider the prior art references, 5 Depta and Ellis, either individually or in combination, as rendering the invention obvious, since none of them discloses a system incorporating the inventive World Model concept utilizing low and high-level algorithms to decompose a "cloud" representing the physical environment into objects 10 as part of a scene description communicated verbally.

The system of the Applicant's invention uses the World Model to assist the user in real-time to identify at least on object in his "field of view", not just to safely navigate around it or simply avoid obstacles, but to name 15 objects and identify scenes, thus adding newly learned information about unknown objects and experiences to the World Model. This "learning ability" is continuously exercised and used to improve the inventive system so that it can effectively serve as a guide to independent movement 20 for the visually handicapped and the blind.

In view of the foregoing remarks, all of the claims in the application are deemed to be allowable. Further reconsideration and allowance of the application is respectfully requested at an early date.

Respectfully submitted,



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